Bridge-to-Corn-Ethanol Subcontract Summary Sheet
Merrick and Company
Technical Advisor: Kelly Ibsen

Industrial Partner: High Plains Corporation York, NE (Size 37 MM gal/yr)
Other Partners: PureVision Technologies Inc.

Starch to Ethanol Process Information

Feedstock: Corn
Facility Capacity: 37,000,000 gal/yr
Ethanol Yield: 2.65-2.70 gallons/bushel
Other Products: Wet and Dry distillers grain

Biomass Process Information

Size of Biomass Process: 25.7 MM gal/yr = 900 dry metric ton/day
Ethanol Yield: 309.5 L/dry metric ton = 74.1 gal / dry ton
Feedstock: Corn Stover
Process: Dilute Sulfuric Acid Prehydrolysis and Enzymatic Hydrolysis
Fermentative Organism: NREL *Zymomonas mobilis*
Steam: Produced by natural gas boiler
Electricity: None generated
Other Information: Cellulase enzyme is produced on-site using the proprietary cellulase production technology from PureVision Technologies Inc.

Links with Existing Facility

Alcohol Storage and Loadout Facilities
Lab Facilities, Maintenance, Management and Administrative Systems
Existing Land, Road, and Rail Facilities
Operations Experience

Capital and Operating Costs

Biomass Plant Capital Investment: $85,884,262= $3.34 / annual gallon
Total Operating Costs: ≈$1.14 / gal ethanol
Feedstock Cost: $14.45 / dry ton = $0.19 / gal ethanol
Chemical and Disposal Cost: $0.17 / gal ethanol

Proforma

Solved for Average Annual Pre-tax Income: $321,307
Equivalent to Average Annual Return of 1.0%
Ethanol Selling Price: $1.10 / gal
Plant Life: 20 years
Financing: 25% Equity – Loan at 7.0% with 15 year term
Depreciation: 15 year straight line

SensitivityAnalysis

Attached

Strengths

Separation of Hydrolysis and Co-fermentation
PureVision Onsite Cellulase Production
Cost of Corn Stover Collection
Engineering Company Verification of Many Equipment Costs

Recommendations/Next Steps

Research is necessary to reduce capital expenditure. Areas for research include feedstock handling, detoxification, pretreatment, cellulase production, validation of separation of hydrolysis and co-fermentation, and establishment of a market for lignin.